

$>$

\lessgtr

6.1 & 6.2 Solving Inequalities

$<$

\lessgtr

\neq

What do these symbols mean?

$<$

less than

$>$

greater than

\leq

less than or equal to

\geq

greater than or equal to

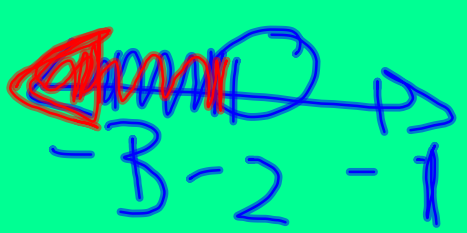
\neq

not equal to

Solving inequalities are just like solving equations, EXCEPT that in place of an equal sign, there will be in inequality symbol!

Example 1: $2x + 6 < 2$

$$\begin{array}{rcl}
 & -6 & -6 \\
 2x + 6 & < & 2 \\
 \hline
 2x & < & -4 \\
 \hline
 x & < & -2
 \end{array}$$





*Rule to Remember!!

If you multiply or divide by a negative number to solve, you **MUST** reverse your inequality symbol!

Example 2: $-4m - 6 > 26$

$$\begin{array}{rcl}
 & +6 & +6 \\
 \text{Example 2} \rightarrow & -4m & > 32 \\
 -9 & -8 & -7 \\
 & & \underline{-4} \\
 & & m < -8
 \end{array}$$



Graphing Inequalities

1) An open circle is used for:

Less Than ✓

&

Greater Than ✓

Example 3: Graph $x < 4$

Example 4: Graph $x > -7$

2) A **closed circle** (filled in) is used for:
Less Than or Equal To
&
Greater Than or Equal To

Example 5: Graph $x \leq -10$

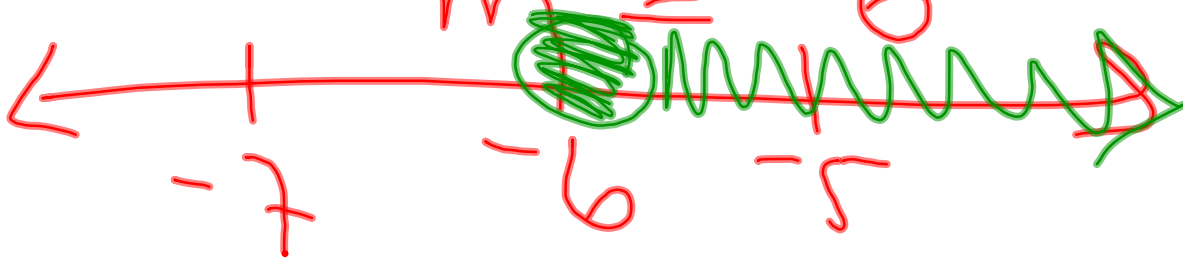
Example 6: Graph $g \geq -2$

$$3m + 6 \geq -12$$

$\quad -6 \quad \quad -6$

$$\frac{3m}{3} \geq \frac{-18}{3}$$

$$m \geq -6$$



$$20 \geq 5 - 10m$$

$$\begin{array}{r} -5 \\ -5 \end{array}$$

$$\begin{array}{r} 15 \geq -10m \\ \hline -10 \end{array}$$

$$\begin{array}{r} -10 \\ -10 \end{array}$$

$$-1.5 \leq m$$

$$m \geq -1.5$$



Try writing an inequality for each statement.

a) all numbers greater than or equal to nine

$$x \geq 9$$

b) Matt scored at least 94%

$$m \geq 94$$

c) Kevin ate at most four cookies

$$k \leq 4$$

d) Katrina spent at most \$40

$$k \leq 40$$

e) Ysabel's batting average was at least 0.303

$$y \geq 0.303$$

f) Kendra studied no more than 35 minutes

$$k \leq 35$$

g) Becky had no less than 7 infractions

$$b \geq 7$$

Seth earns \$9.25 an hour working for his uncle. Seth wants to buy a new cell phone that costs \$275.

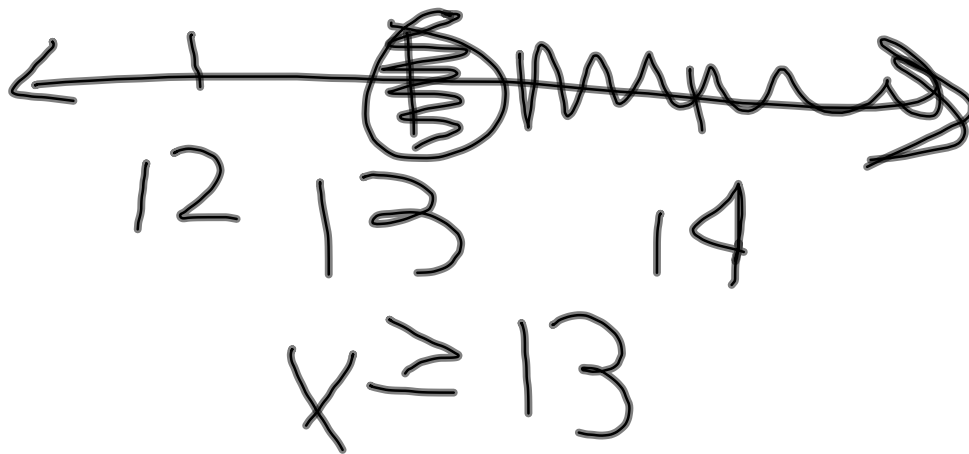
Write an inequality that describes how many hours Seth must work to get the phone.

$$9.25x \geq 275$$

Now solve it. Round to the nearest whole hour.

30 hrs





Homework Time!